

Anticipation under Section 102 of the Patent Act requires that a prior art reference disclose every claim element of the claimed invention. See, e.g., Orthokinetics, Inc. v. Safety Travel Chairs, Inc., 806 F.2d 1565, 1574 (Fed. Cir. 1986). While other references may be used to interpret an allegedly anticipating reference, anticipation must be found in a single reference. See, e.g., Studiengesellschaft Kohle, G.m.b.H. v. Dart Indus., Inc., 726 F.2d 724, 726-27 (Fed. Cir. 1984). The absence of any element of the claim from the cited reference negates anticipation. See, e.g., Structural Rubber Prods. Co. v. Park Rubber Co., 749 F.2d 707, 715 (Fed. Cir. 1984). Anticipation is not shown even if the differences between the claims and the prior art reference are insubstantial and the missing elements could be supplied by the knowledge of one skilled in the art. See, e.g., Structural Rubber Prods., 749 F.2d at 716-17.

It is respectfully submitted that contrary to the Examiner's characterization of Watanabe, Watanabe does not identically disclose nor suggest the invention of applicant's independent claim 1. In this regard, claim 1 is specifically limited to a magnetic assembly that comprises a magnetic armature wedge structure including a molded body having a magnetic core and a resin part encapsulating the magnetic core. It is further recited that the magnetic core is disposed to extend along substantially an entire length of the molded body.

As clearly shown in Figure 2 of Watanabe, Watanabe's magnetic wedge consists of a plurality of magnetic strips disposed so as to be in spaced, non-contacting relation from one another, uniformly distributed throughout the wedge and at a predetermined inclination angle θ to the depth direction of the stator winding slot, and a plastic member for molding the magnetic member. In column 3, lines 44-53 of Watanabe, it is stated "The inclination angle θ of the magnetic strip 6a, 6b should be as large as possible from the view point of the magnetic characteristic. However, it should be noted that the magnetic strips must not be inclined so large that both ends of the magnetic strip extend over the core tooth portions 1a and 2b at both sides of the slot 2."

It is evident that Watanabe does not provide nor in any way suggest a magnetic core disposed to extend along an entire length of the molded body and a resin part encapsulating such a magnetic core. On the contrary, Watanabe teaches a plurality of discrete and non-contacting metal strips or rods that are uniformly disposed throughout the entirety of the Watanabe wedge. Moreover, each of the strips or rods provided in Watanabe is disposed at an angle θ to the vertical direction of the wedge. Thus, there is no teaching of a magnetic core extending along substantially the entire length of the wedge. The Examiner's suggestion that components 6a as shown in Figure 1 extend along "the entire length" in the "radial direction" of the wedge is not well taken. Claim 1 recites a core extending along the length of the molded body. "Length" is defined in the Random House Webster's College Dictionary as "the longest extent of anything as measured from end to end". Because the length of the prior art wedge "in a radial direction" is not its longest extent measured from end to end, the Examiner's suggestion that components 6a extend along the entire length of the wedge, as recited in applicant's claims, is completely without merit and improper.

As it is understood that length refers to longitudinal length unless specifically characterized otherwise, it is respectfully submitted that Watanabe does not anticipate claim 1.

It is further respectfully submitted that Watanabe does not in any way anticipate the subject matter of applicant's claim 10. Claim 10 specifies that the magnetic core comprises an elongated centrally disposed magnetic core made from mixing resin and ferromagnetic particles. There is no teaching in Watanabe of a centrally disposed magnetic core much less a core made from mixing resin and ferromagnetic particles. The only teaching of magnetic material in Watanabe is the teaching of the discrete magnetic strips 6a and 6b. No fair reading of Watanabe would teach or suggest the mixture of resin and ferromagnetic particles to produce a centrally disposed magnetic core. Thus, the Examiner's rejection in this regard cannot properly be maintained.

Claim 11 depends from claim 10 and requires that the centrally disposed core made from mixing resin and ferromagnetic particles have a circular cross-section. It is unclear from the Examiner's rejection what is considered to be a "magnetic core" in Watanabe. If it is strips 6a and 6b, they are not formed from a mixture of resin and ferromagnetic particles and are not centrally disposed to extend along the length of the molded body. It is therefore submitted that the Examiner's rejection based on Watanabe is unfounded.

It is further respectfully submitted that the invention provides significant and unanticipated advantages over Watanabe. As previously asserted in the response filed October 24, 2002, because the magnetic core part which in one embodiment, as recited in claim 10, is made from a mixture of ferromagnetic material and resin, is not designed to withstand electromagnetic forces, the magnetic volumetric mixing ratio can be very high (greater than 60%) to effectively enhance the magnetic field. The other part of the molded body comprising, e.g., high-strength resin encapsulating material to encapsulate the magnetic core advantageously withstands forces acting on the wedge.

Watanabe in no way teaches or suggest the concept of encapsulating a magnetic core in a resin material but teaches only a structure where an inclined magnetic strips are uniformly distributed throughout the entirety of the molded wedge. Accordingly, claims 1 and 10-11 are not anticipated by nor obvious from Watanabe. It is further respectfully noted that the magnetic flux in Watanabe is strongly influenced by the inclination angle θ by the magnetic strips. Because of these inclined strips, there are two components of the enhanced magnetic flux. Radial flux crossing the air gap between the rotor and the stator and circumferential flux crossing the stator winding slot. In contrast, the enhancement of the magnetic field according to the invention is determined by the magnetic volumetric mixing ratio. The enhanced magnetic flux is mainly in the circumferential direction crossing the winding slot. Additionally, the magnetic flux provided with the structure of the invention is much more uniform than that in Watanabe. Furthermore, from the standpoint of mechanical strength, the construction taught by Watanabe can withstand much less magnetic forces than is

possible with the invention disclosed and claimed by applicants. This is because the provision of inclined strips as taught by Watanabe can greater reduce the strength of the magnetic wedge.

For all the reasons advanced above, reconsideration and withdrawal of the rejection over Watanabe is requested.

Claim 20 was rejected under 35 USC 102(b) as anticipated by Ishihara. Applicant respectfully traverses this rejection.

By careful review of the Ishihara patent, it is clear that this patent deals with a method of improving the wedge mounting workability. As show in Figures 5-8, Ishihara developed a concept of a two-piece magnetic wedge which includes a first part 12A which is a mixture of magnetic powder and resin and a second part 12B which is a mixture of magnetic powder and foaming resin. Putting parts 12A and 12B together at the mouth of the stator winding slot and then heating them causes the volume of part 12B to expand 2-10 times to fill all available spaces in the slot. As part 12B solidifies, the stator winding is locked within the slot.

From the standpoint of magnetic filed enhancement, this design is very similar to Myers (USP 2,201,699) discussed in detail in the response filed October 24, 2002. The main disadvantage of this design is that the magnetic flux is non-uniform and effective flux density is low. In any event, it is respectfully submitted that Ishihara does not teach or fairly suggest the assembly claimed in claim 20 comprising a magnetic armature wedge structure and further comprising a magnetic wedge slide adjacent the armature wedge structure. Ishihara teaches only a wedge formed in two parts and contrary to the Examiner's statement that part 12B is a wedge slide, part 12B is explicitly characterized by Ishihara as a resin wedge. It is therefore respectfully submitted that the Examiner has mischaracterized Ishihara and that Ishihara does not anticipated nor otherwise fairly suggest the invention recited in claim 20.

Claims 2 and 28-29 were rejected under 35 USC 103 as being unpatentable over Watanabe et al in view of Ishihara. Applicant respectfully traverses this rejection.

These claims are submitted to be patentable over Watanabe or Ishihara for the reasons advanced above. The Examiner's attempted combination of Watanabe and Ishihara does not overcome the deficiencies of the individual references noted above. Indeed, neither Watanabe nor Ishihara teach or in any way suggest a magnetic core disposed to extend along substantially an entire length of a wedge structure molded body and encapsulated in a resin part. Both these references also fail to anticipate or any way suggest a magnetic core comprising a centrally disposed magnetic core made from mixing resin and ferromagnetic particles and similarly fail to teach or suggest such a magnetic core having a circular cross-section. Indeed, Ishihara's teaching of a wedge part comprising a resin mixed with a magnetic particles relates to an entirely uniform distribution of particles in the molded body and there is no teaching or suggestion whatsoever of a magnetic core that is encapsulated in resin, as claimed. For the same reasons, there is no teaching or suggestion whatsoever of a centrally disposed magnetic core comprised of a mixture of resin and magnetic particles and having a circular cross section.

For all the reasons advanced above, it is respectfully submitted that the invention claimed does not anticipated by nor obvious from Watanabe or Ishihara taken alone or in any combination.

Applicant notes with appreciate the Examiner's indication that claims 2 and 21 contain allowable subject matter. It is also noted that claim 30 has received no rejection over the prior art and is therefore submitted to be allowable.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in condition for allowance and an early Notice to that effect is earnestly solicited.

TONG et al
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Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____



Michelle N. Lester
Reg. No. 32,331

MNL:slj
1100 North Glebe Road, 8th Floor
Arlington, VA 22201-4714
Telephone: (703) 816-4000
Facsimile: (703) 816-4100